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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/625,963	07/26/2000	Hans Josef Stauss	ICI 101	8595

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EXAMINER
DECLOUX, AMY M

ART UNIT	PAPER NUMBER
1644	15

DATE MAILED: 05/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	09/625,963	STAUSS ET AL.	
	Examiner	Art Unit	
	Amy M. DeCloux	1644	

-- The MAILING DATE of this c mmunication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-7,15,19 and 43-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7* is/are allowed.

6)☒ Claim(s) *1,4-6,15,19 and 43-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Applicant's Amendment, filed 2-28-02 (Paper No. 12), and a certified copy of applicant's foreign priority document of United Kingdom Application 9823897.5 (11/02/1998), filed 4-12-02 (Paper No14), are acknowledged and have been entered.

2. Newly added claims 39-44 have been renumbered as claims 43-48, respectively, in accordance with Rule 1.126. It is noted that claims numbered 39-42 were originally filed with the instant application and subsequently cancelled in applicant's preliminary amendment filed 7-26-00 (Paper No. 4).

3. In view of applicant's amendment, the outstanding objection to the disclosure regarding trademarks has been withdrawn.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

ENABLEMENT

5. MAINTAINED Claims 1, 4-6, 15 and 19 are rejected under 35 U.S.C. 112, first paragraph, because the specification does not reasonably provide enablement for the recitation of a cancer vaccine for any cancer, including the certain types of cancer that over express WT-1 (including leukemia, breast, melanoma or ovarian cancer as recited in newly added claim 48). Neither does the instant specification provide enablement for how to make and use a peptide comprising SEQ ID NO:1, other than SEQ ID NO:1 itself, nor a peptide thereof comprising at least six consecutive amino acids of the amino acid sequence of SEQ ID NO:1, nor a variant thereof wherein the side chains of one or two of the amino acids of SEQ ID NO:1 are altered, nor a pharmaceutical composition thereof, nor a peptide comprising the amino acid sequence of SEQ ID NO:1 wherein the peptide includes nonpeptide bonds.

Furthermore, the specification disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed in the instant claims without an undue amount of experimentation. The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the extremely large number of peptides broadly encompassed by the claims, nor with the large number of cancers.

Response to Arguments

6. Applicant's arguments filed 2-28-02 (Paper No.12) have been fully considered but they are not persuasive.

Applicant addresses the enablement rejection by noting that only claim 19 (and newly added claim 48 relates to a cancer vaccine and alleging that the examiner has rejected all of the claims because allegedly the specification does not reasonably provide enablement for the recitation of a cancer vaccine for any cancer.

It is noted by the examiner that though all the pending claims were rejected under a 112 first enablement rejection for several reasons, the vaccine aspect of the enablement rejection was applied only to claim 19 which encompasses a vaccine, (see specifically the last three paragraphs on page 6 and the first four paragraphs of page 7 of the office action mailed 10-31-01 (Paper No. 10)).

Regarding the vaccine claim 19 (and as applied to new claim 48 drawn to a cancer vaccine for leukemia, breast, melanoma or ovarian cancer), Applicant contends that by amending claim 19 to include the limitation of a cancer in which WT-1 is aberrantly expressed, claim 19 (and newly added dependent claim 48 is no longer directed to *any* cancer. The examiner notes that the phrase "aberrantly expressed" typically encompasses an increased or decrease expression, though the specification discloses on page 9 that "aberrantly expressed" means that the polypeptide is over expressed compared to normal levels. Therefore, as stated in the previous office action, the instant specification provides insufficient guidance and direction regarding the effectiveness of the recited peptide consisting of SEQ ID NO:1 as a cancer vaccine on <u>any</u> cancer cells <u>not</u> over expressing WT-1, or <u>not</u> expressing HLA-A2, because the antigen presenting structure would not be present, and/or the peptide antigen would not be present in sufficient quantity.

Applicant traverses the enablement rejection of claims 1, 4-6, 15 and 19 with respect to the specification's insufficient guidance for the production of peptides larger than a peptide consisting of SEQ ID NO:1 that can bind to a class I molecule. The traversal is based on the grounds that since Janeway teaches that "peptides that bind to MHC class I are usually 8-10 amino acids long", accordingly Janeway does not limit MHC binding to peptides of 8-9 amino acids in length. However, the examiner points out that Janeway teaches how uncommon it is for MHC Class I binding peptides to have a length other than 8-10 amino acids long by stating that just 2 such peptides have been identified, when one considers the many hundred of class I peptides which have been identified by the time of Janeway's publication (1999). In view of the rarity of a class I binding peptide that is longer than 8-10 amino acids and in view of the insufficient guidance and direction in the instant specification regarding an MHC class I binding peptide with more than the nine amino acids set forth in SEQ ID NO:1, it would require undue experimentation for one of skill in the art to predict which peptides comprising SEQ ID NO:1 would maintain the ability to bind class I MHC molecules.

Applicant further traverses said rejection on the grounds that peptides according to claim 1 have a greater number of amino acids than SEQ ID NO:1 would typically be processed by an antigen presenting cell to produce a fragment that binds to an MHC molecule, However, while the examiner agrees that larger peptides are processed to produce smaller peptides that bind MHC class I molecules, the instant specification provides insufficient guidance and direction regarding which larger peptides will be recognized by a proteosome and processed to a peptide consisting of SEQ ID NO:1, or

a peptide comprising at least 6 consecutive amino acids of SEQ ID NO:1, or a variant thereof, in which the amino acid side chains in one or two of the amino acids of SEQ ID NO:1 is altered. Therefore, it would require undue experimentation for one of skill in the art to predict which of the peptides encompassed by the instant claims, other than a peptide consisting of SEQ ID NO:1, has the ability to bind MHC class I molecules.

Relative to the pending claims, It is noted that the specification provides support only for a peptide consisting of SEQ ID NO:1 binding to the HLA-A2 molecule; and is not enabled for said peptide binding to any other MHC molecule, nor is it enabling for any other variant of SEQ ID NO:1, nor is it enabling for any other peptide comprising SEQ ID NO:1, for the reasons described above.

NEW GROUNDS OF REJECTION (Enablement)

7. NEWLY ADDED Claims 43-49 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 43-49 are rejected under 35 U.S.C. 112, first paragraph, because the specification does not reasonably provide enablement for the recitation of a cancer vaccine for any cancer, including the cancers recited in claim 48 which the specification discloses over express WT-1.

Neither does the instant specification provide enablement for how to make and use a peptide comprising SEQ ID NO:1, other than a peptide consisting of SEQ ID NO:1 itself, nor a portion of a peptide comprising six consecutive amino acid of the amino acid sequence of SEQ ID NO:1, nor a variant thereof wherein the side chains of one or two of the amino acids of SEQ ID NO:1 are altered.

Furthermore, the specification disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed in the instant claims without an undue amount of experimentation. The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the extremely large number of peptides broadly encompassed by the claims, nor with the large number of cancers.

Claims 43, 45 and 48 recite a peptide having at least 8 but fewer than 100 amino acids, and comprising an amino acid sequence selected from the group consisting of RMFPNAPYL (SEQ ID NO:1), a peptide comprising at least six consecutive amino acids of SEQ ID NO:1; and variants thereof wherein the side chains of one or two of the amino acids of SEQ ID NO:1 are altered.

Claims 44 and 46 recite a peptide consisting of 8-12 amino acids and comprising an amino acid sequence selected from the group consisting of RMFPNAPYL (SEQ ID NO:1), a peptide comprising at least six consecutive amino acids of SEQ ID NO:1; and variants thereof wherein the side chains of one or two of the amino acids of SEQ ID NO:1 are altered.

Claim 47 recites a peptide consisting of 8-12 amino acids and comprising an amino acid sequence selected from the group consisting of RMFPNAPYL (SEQ ID NO:1), a peptide comprising at least six consecutive amino acids of SEQ ID NO:1

The instant specification discloses cancers such as some leukemias that over express WT-1 (comprising SEQ ID NO:1), which the instant specification discloses as being derived from human WT-1 transcription factor. The instant specification also discloses on page 54 and in Figures 5 & 6, that the peptide consisting of SEQ ID NO:1 is I) presented by leukemic tumor cell lines that over express WT-1 and express HLA-A2, ii) that CTL directed to the peptide consisting of the amino acid sequence of SEQ ID NO:1 recognize CD34+ cells from HLA-A0201+ CML patients, as well as CD34+, HLA-A2+ leukemic tumor cell lines.

However, there is no reason to expect that said peptide would be effective as a cancer vaccine on any cancer cells not over expressing WT-1, or not expressing HLA-A2, because the antigen presenting structure would not be present, and/or the peptide antigen would not be present in sufficient quantity.

Janeway et al (Immunobiology 4th Edition, page 551) teaches that tumor peptide antigens can be targets of a tumor specific T cell response because they are not displayed on the surface of normal cells at least not at levels sufficient to be recognized by T cells, which is consistent with the decreased lysis by said CTL of CD34+ cells from HLA-A0201+ normal individuals as disclosed in Figure 6 of the instant specification.

Janeway et al also teaches that MHC Class I binding motifs of peptides is specific to each class I protein, and also that a peptide restricted by one MHC class I protein might not be immunogenic in an individual lacking said MHC class I protein (see page 121, page 569 and Figure 4.7 of Janeway et al. Immunobiology 4th Edition). Accordingly, there is insufficient guidance and direction from the instant specification that cancer cells which don't express HLA-A2 would be able to bind a peptide comprising or consisting of SEQ ID NO:1.

Therefore, it would require one of skill in the art undue experimentation to predict which cancers, that do not over express WT-1 and that do not express HLA-A2, that would be effectively treated by a vaccine comprising a peptide comprising SEQ ID NO:1.

The instant specification provides insufficient guidance and direction that the recited peptide would be effective as a vaccine against any cancer in which WT-1 is aberrantly expressed, including those that over express WT-1 and that express HLA-A2 .

The instant specification discloses in Figures 5 and 6 that a peptide of SEQ ID NO:1 is effective in killing cancer cells in vitro, but there is insufficient guidance from the instant disclosure on how to extrapolate from in vitro killing to in vivo killing.

Pages 53-54 of the specification disclose that the critical transformation events in CML and AML affect CD34+ cells, and that the in addition to the hallmark t(9;22) chromosomal translocation, the Wt-1 transcription factor is a candidate protein contributing to leukemogenesis, especially in view of its increased expression in CD34+ cells from CML and AML patients and in view of studies showing the in vitro

enhancement of proliferation of hematopoietic cells with increased WT-1 expression, and that a recent study suggesting T cells specific for CD34+ progenitor cells are critically important in mediating anti-leukemic effects in CML patients.

However, Janeway teaches that melanoma tumor specific antigens which were recognized by CTL in vitro, were not expanded in vivo, suggesting that said peptides are not immunogenic in vivo (see page 551 of Janeway et al Immunobiology 4th Edition). Therefore, the in vitro data of the instant specification do not provide sufficient guidance and direction to extrapolate that a peptide comprising or consisting of SEQ ID NO:1 is immunogenic in vivo and would be effective as a cancer vaccine, absent evidence to the contrary.

In view of the insufficient guidance and direction from the instant specification and in the art, with regard to the efficacy of the recited peptide, including a peptide consisting of SEQ ID NO:1, as a cancer vaccine, it would require undue experimentation by one of skill in the art to develop a vaccine comprising a peptide comprising SEQ ID NO:1, that would be effective in treating any cancer in which WT-1 is aberrantly expressed, comprising the use of a peptide consisting of or comprising SEQ ID NO:1, a peptide comprising at least six consecutive amino acids of SEQ ID NO:1; and variants thereof wherein the side chains of one or two of the amino acids of SEQ ID NO:1 are altered.

Further, the instant specification provides insufficient guidance and direction on how to make and use a peptide comprising SEQ ID NO:1, other than SEQ ID NO:1 itself, a peptide comprising SEQ ID NO:1, a peptide comprising at least six consecutive amino acids of SEQ ID NO:1; and variants thereof wherein the side chains of one or two of the amino acids of SEQ ID NO:1 are altered, a pharmaceutical composition thereof, nor a vaccine composition thereof.

Class I molecules bind short peptides of 8-9 amino acids (see page 121 of Janeway et al). Therefore, the instant specification provides insufficient guidance and direction that a peptide larger than a peptide consisting of SEQ ID NO:1 would bind a class I molecule, as is encompassed by a peptide comprising SEQ ID NO:1 or a fragment thereof.

MHC restricted class I molecules bind a wide range of peptide antigens which would tolerate conserved substitutions, (see page 121 and Figure 4.7 of Immunobiology 4th Edition by Janeway et al. (1999)). However the instant specification provides insufficient guidance and direction that a peptide comprising non-conserved substitutions within SEQ ID NO:1, especially at anchor residues, or any substitution outside of a peptide comprising SEQ ID NO:1, would still retain the ability to bind class I.

MHC restricted class I molecules form a pocket in which antigenic peptides fit and consequently bind (see Figure 4.3 and Figure 4.5 of Immunobiology 4th Edition by Janeway et al. (1999)). Therefore, the structure of a peptide must fit a class I molecule. The instant specification provides insufficient guidance and direction that a peptide comprising the amino acid sequence of SEQ ID NO:1 wherein the peptide includes any

number and type of nonpeptide bonds will retain a structure that has the ability to fit into the MHC binding pocket.

Therefore, it would take undue experimentation by the skilled artisan to predict which of the recited peptides discussed supra (with the exception of a peptide consisting of SEQ ID NO:1) would bind MHC Class I.

In re Fisher, 166 USPQ 18 indicates that the more unpredictable an area is, the more specific enablement is necessary in order to satisfy the statute.

In view of the quantity of experimentation necessary, the limited working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims, it would take undue trials and errors to practice the claimed invention and this is not sanctioned by the statute.

WRITTEN DESCRIPTION

8. MAINTANED Claims 1, 4-6, 15 and 19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Response to Arguments

9. Applicant traverses the written description rejection on the grounds that the motif of SEQ ID NO:1 in a peptide represents the conserved region critical for structural and specific immunoprotective functional features, and that the presence of this motif in a peptide is all that is required to teach how to make a peptide with these features. The examiner notes that the specification provides an insufficient description of a peptide able to bind class I molecules which comprises said structural motif of SEQ I DNO:1 and wherein said peptide is larger than the nonamer of SEQ ID NO:1. Accordingly there is insufficient written description for of a peptide able to bind class I molecules which comprises at least 6 consecutive residues of SEQ ID NO:1, or which comprises at least 6 consecutive residues of SEQ ID NO:1, wherein 2 of said 6 amino acids can be changed.

Applicant further traverses the rejection on the grounds that it is well within the ability of a person of ordinary skill in the art to make peptides comprising a portion of SEQ ID NO:1 (ie at least 6 consecutive amino acids of SEQ ID NO:1), or a variant of SEQ ID NO:1 (wherein 2 of said 6 amino acids can be changed), and to test their ability to bind HLA-A2. However applicant is reminded that Vas Cath Inc. v. Mahurkar makes it clear that written description is severable from enablement.

Furthermore, one of skill in the art would not know which of the innumerable proteins/peptides encompassed by the recitation of a peptide comprising at least 6 consecutive residues of SEQ ID NO:1, or of a peptide comprising at least 6 consecutive residues of SEQ ID NO:1, wherein 2 of said 6 amino acids can be changed, could bind an HLA Class I molecule without further description by the instant specification.

Janeway (page 121) teaches that Class I peptides bind through the side chains of one or two anchor resides. The instant claims encompass peptide variants and portions of SEQ ID NO:1 which lack these essential anchor residues. The instant specification does not disclose the identity of the anchor residues of the recited peptides comprising SEQ ID NO:1. Therefore, based only on the peptide species consisting of SEQ ID NO:1, one would not know which of the recited peptides are encompassed by the genus of HLA-A2 binding peptides comprising at least 6 consecutive residues of SEQ ID NO:1, and peptides wherein 2 of said 6 amino acids can be changed, without further description in the instant specification .

Applicant further contends that if the peptides larger than the 9 amino acids sequence disclosed as SEQ ID NO:1, the residues that lie outside of the contiguous 9 amino acid sequence may be fragmented by the suitable antigen presenting cell as disclosed on page 6 , lines 9-12 of the specification. The examiner notes that the specification on page 6, lines 9-12 discloses that the peptide.... may be processed so that a fragment is produced that may bind an MHC molecule. It is noted that Janeway et al teach that the proteosome is implicated in the production of peptide ligands for MHC Class I molecules and that the proteosome's specificity is determined by its subunits (see page 125). Therefore one of skill would not know how to predict which peptides comprising SEQ ID NO:1 would contain the necessary recognition site for degradation by the proteosomes without further description form the instance specification.

Applicant further traverses the rejection on the grounds that the specification discloses on page 6, lines 19-20, that the flanking residues do not substantially affect the ability of the peptide, representing the conserved region critical for the structural and specific immunoprotective functional features, to bind to the MHC or to present the peptide to the CTL (page 9, lines 17-22). However, the examiner notes that page 6 discloses that the peptide may further comprise a carrier peptide or protein and discloses nothing about its ability to bind MHC. The examiner also notes that page 9 discloses that if a peptide which is greater than around 12 amino acid residues is used to directly bind to a MHC molecule, it is preferred that the residues that flank the core HLA binding region are ones that do not substantially affect the ability of the peptide to bind to the MHC molecule or present the peptide to the CTL. However, no such residues or peptides are described in the specification.

Applicant further traverses the rejection on the grounds that two issued US patents contain claims which recite the terminology "peptide comprising the amino acid..". However it is noted that the claims of neither patent recite MHC Class I peptides which must fit into the MHC Class I binding pocket, and further the instant application is examined on the basis of its own merits.

The examiner notes that applicant submits that the claims as amended define the terms "portion" and "variant". However, reciting these definitions does not overcome the written description rejection, because there is not a defined genus of structures correlated to a function.

Applicant further contends that the rejection of claim 6 is without basis, since applicants disclose on page 4, lines 10-25, the use of no-peptide alternatives to amino

acid residues joined by peptide linkages. However, the examiner notes that no peptide encompassed by SEQ ID NO:1 which comprises a linker between the residues, or retro-inverse peptides comprising SEQ ID NO:1, have been disclosed in the specification, wherein said peptide binds a MHC Class I molecule.

Therefore, though applicant's arguments and amendments have been carefully considered, the rejection is maintained and applied to the newly amended and added claims.

NEW GROUNDS OF REJECTION

10. NEWLY ADDED Claims 43-48 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 43, 45 and 48 recite a peptide having at least 8 but fewer than 100 amino acids, and comprising an amino acid sequence selected from the group consisting of RMFPNAPYL (SEQ ID NO:1), a peptide comprising at least six consecutive amino acids of SEQ ID NO:1; and variants thereof wherein the side chains of one or two of the amino acids of SEQ ID NO:1 are altered.

Claims 44 and 46 recite a peptide consisting of 8-12 amino acids and comprising an amino acid sequence selected from the group consisting of RMFPNAPYL (SEQ ID NO:1), a peptide comprising at least six consecutive amino acids of SEQ ID NO:1; and variants thereof wherein the side chains of one or two of the amino acids of SEQ ID NO:1 are altered.

Claim 47 recites a peptide consisting of 8-12 amino acids and comprising an amino acid sequence selected from the group consisting of RMFPNAPYL (SEQ ID NO:1), a peptide comprising at least six consecutive amino acids of SEQ ID NO:1

The instant disclosure of "a peptide comprising the amino acid sequence of SEQ ID NO:1" does not adequately describe the scope of the claimed genus, which encompasses a substantial variety of subgenera. By reciting the term "comprising" in the instant claims, said peptide can also encompass an indeterminate number and type of additional amino acids, in addition to the amino acids recited in SEQ ID NO:1. With the exception of the peptide consisting of the amino acid sequence of SEQ ID NO:1, there is no description of the required structural and specific immunoprotective functional features of said peptides, or of the conserved regions that would be critical for these features. Further, the prior art does not provide compensatory structural or correlative teachings to enable one of skill to identify the peptides encompassed, with the exception of a peptide consisting of the amino acid sequence of SEQ ID NO:1. Given the indefiniteness of the number and type of additional amino acids that may be encompassed by the peptide of the instant claims, the peptide, pharmaceutical composition thereof, and a vaccine comprising said peptide, the structure of "a peptide comprising the amino acid sequence of SEQ ID NO:1" is not conventional in the art

and one of skill in the art would not recognize from the disclosure that applicant was in possession of the genus a peptide comprising the amino acid sequence of SEQ ID NO:1 encompassed by the claimed invention.

It is noted that though the claimed invention is directed to peptides and not cDNA, the principle of the following still holds for said peptides: a description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus, or of a recitation of structural features common to the genus, which features constitute a substantial portion of the genus. *Regents of the University of California v. Eli Lilly&Co.*, 119F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997).

By reciting a peptide comprising the amino acid sequence of SEQ ID NO:1, or a variant of a peptide comprising the amino acid sequence of SEQ ID NO:1. Given that a peptide comprising the amino acid sequence of SEQ ID NO:1 itself is not adequately described, (see previous two paragraphs) , it follows that a variant of said peptide wherein variants thereof wherein the side chains of one or two of the amino acids of SEQ ID NO:1 are altered is also not adequately described. and Further, since applicants have not disclosed a variant of a peptide comprising the amino acid sequence of SEQ ID NO:1, or a variant of a peptide comprising six consecutive amino acids of SEQ ID NO:1 wherein either of said variants binds HLA –A2, and given that the prior art does not provide compensatory structural or correlative teachings to enable one of skill to identify a peptide encompassed by said claims, the invention a variant of a peptide comprising the amino acid sequence of SEQ ID NO:1 is also not adequately described, along the lines of reasoning discussed supra. Despite knowledge in the art for producing variants, the specification fails to provide guidance regarding what deletions, additions, substitutions or alterations in SEQ ID NO:1 result in peptide variants that retain the ability to bind HLA-A2.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention.* The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.)

ART REJECTIONS

11. The art rejections have been withdrawn in view of applicant's amendment and remarks.

ALLOWABLE SUBJECT MATTER

12. Claim 7 is allowable because the prior art does not teach or suggest a peptide consisting of the sequence of SEQ ID NO:1.

CONCLUSION

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy M. DeCloux whose telephone number is 703 306-5821. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on 703 308-3973. The fax phone numbers for the organization where this application or proceeding is assigned are 703 305-3014 for regular communications and 703 305-7401 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0196.

Amy DeCloux, PhD
Patent Examiner, 1644
May 19, 2002

Patrick Nolan, PhD
Primary Examiner, 1644